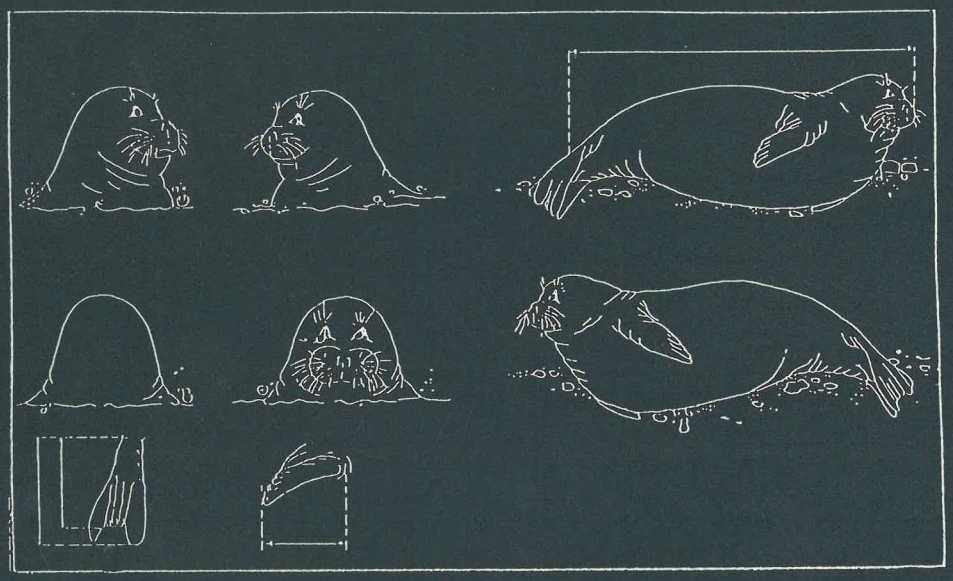
THE MONK SEAL REGISTER

within the scope
of the environmental policy
of the Commission of the European Communities



Identification form created by Didier MARCHESSAUX and Natacha MULLER (1985)

SEA MAMMAL RESEARCH UNIT
Cambridge

INSTITUT ROYAL DES SCIENCES NATURELLES DE BELGIQUE

The Mediterranean Monk Seal

The monk seal belongs to the genus *Monachus*, the only group of seals limited to subtropical and tropical waters. This endangered genus contains three species:

- The Caribbean monk seal, *Monachus tropicalis*. This species was last observed in 1952.
- The Hawaiian monk seal, *Monachus schauinslandi*. On the verge of extinction at the beginning of this century, this species has benefitted from exceptional protection measures under the auspices of the United States Fish and Wildlife Service. At present, the population is on the order of 1000 to 1500 individuals.
- The Mediterranean monk seal, *Monachus monachus*. A steadily declining species, its numbers are presently estimated to be no more than 300 to 500 individuals, two-thirds of them living within the limits of the European Union. The Mediterranean monk seal is among the most endangered mammals in the world.

©A. Caltagirone (Parc National de Port-Cros). 1993.
Réserve Satellite du Cap Blanc.

Distribution

The Mediterranean monk seal frequents coastal waters of the Black and Mediterranean Seas and of the Atlantic along Africa's north-west coast and in the archipelagos of Madeira and the Canary Islands.

There were observations of breeding colonies of Mediterranean monk seals on open beaches at least until the 18th century. Nowadays, however, sightings of Mediterranean monk seals on beaches are rare. Activities related to reproduction now take place inside sea caves on sand and shingle beaches out of reach of the waves.

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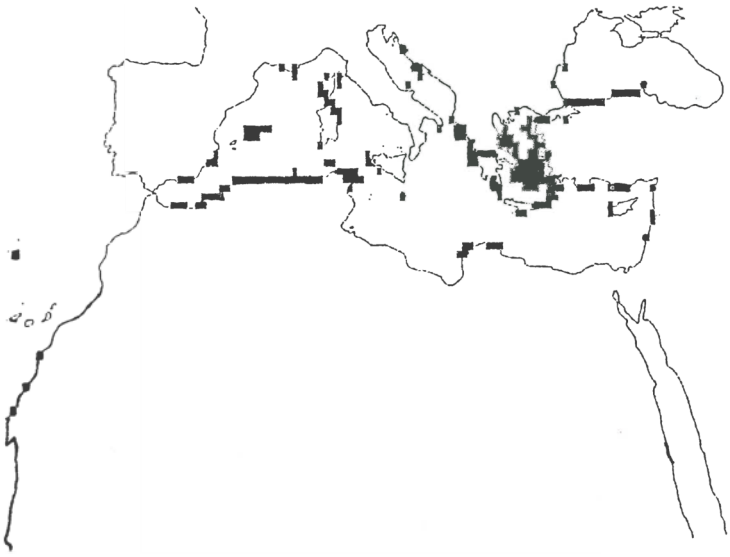
Our knowledge of the biology of the Mediterranean monk seal has increased over the course of the last few years, but it is still extremely limited:

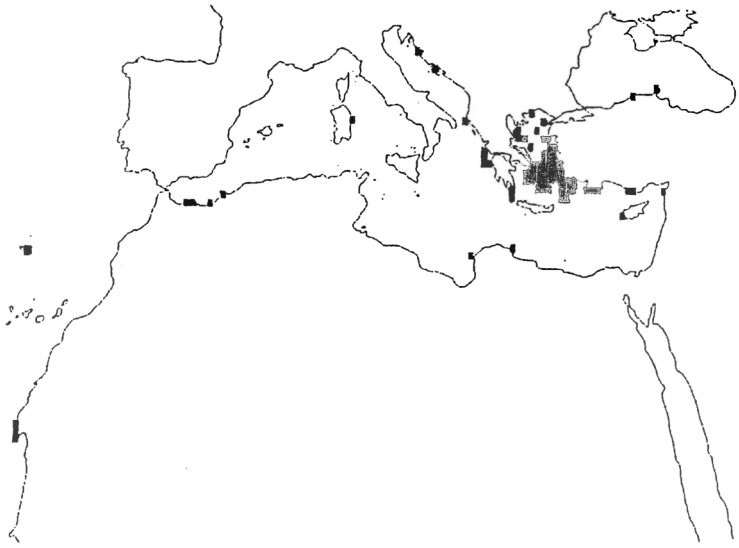
- Annual distribution of births and habitat use are the parameters for which we have the most extensive data.
- Age of sexual maturity, length of gestation and age of weaning are still imperfectly known.
- Death rate and reproduction rate in function of age class, rate and strategy of migration are virtually unknown vital parameters.

Information on survival and reproduction rates, diet and migration is URGENTLY needed.

A cartography of historical records since 1923 illustrates the evolution of the spatial and temporal distribution of the monk seal.



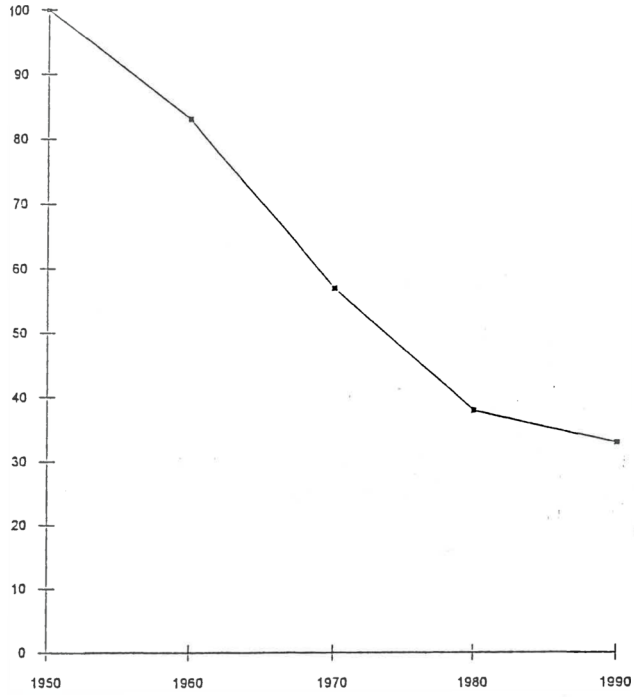
Monk seal distribution during 50's.



Monk seal distribution during 90's

These data illustrate the extreme fragmentation of the range of the Mediterranean monk seal as well as a constant decline of its populations. In fact, the overall range of the species remains constant in longitude and latitude, but the surface actually occupied by seals has considerably contracted. The zones that are occupied are fragmented and populated by small numbers of individuals; present-day populations are highly dispersed.

©P. Dendrinos (HSSPMS). 1990. - "Theodoros", first baby monk seal rehabilited in the "Seal Treatment and Rehabilitation Center" by the HSSPMS. Alonissos. NMPANS - Greece.



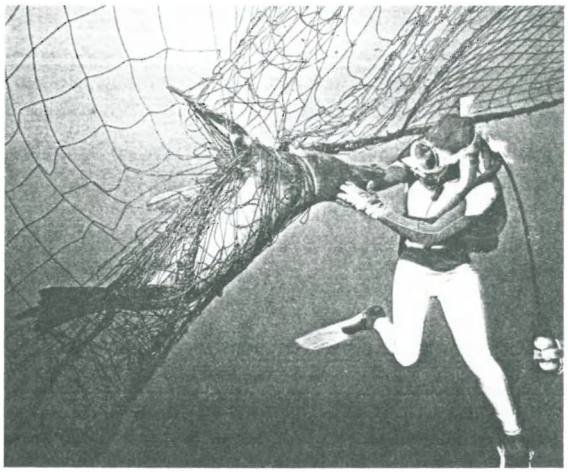
Percentage of 1950 range still occupied in subsequent decades, based on estimates of numbers of 50x50 km^2 inhabited.

Causes of decline

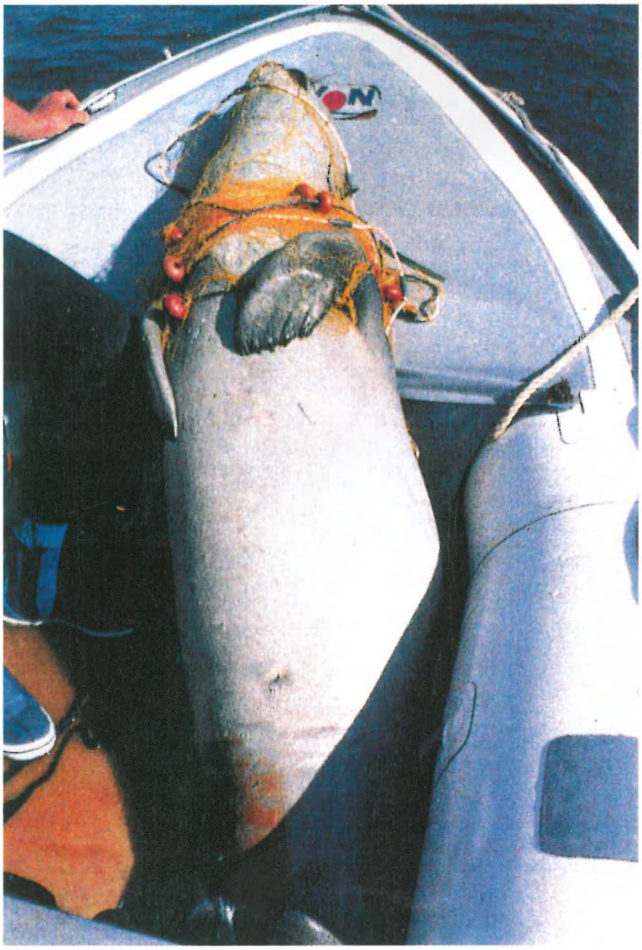
Many factors have contributed to the decline of the monk seal:

- Deliberate destruction of seals.
- Habitat degradation through industrial and tourist activities.
- Disturbance.
- Drowning in fishnets.
- Pollution of the marine habitat.
- Insufficient food resources.

Each of these factors is, in some way, playing a part in the reduction of monk seal number.
The degree of interference of any negative influence varies from one region to another and may evolve over a given period of time; nevertheless, deliberate killing of monk seal has long been established as being the most important factor responsible for the decline of the species.



©R.L. Gentry. 1987. - California.
Drowning in nets is one of the major threats for the pinnipeds.



©A. Vlachoutsikou (WWF-Greece) and D. Cebrian (EREB). 1993.
Drowned adult female seal found dead on 24/05/93. Zakynthos.

©Document from F.J. Avella. 1950. - Monk seal caught in net.
South coast of Menorca.

Risks of extinction

Viability analyses conducted by the Sea Mammal Research Unit in 1992 show that most of today's populations of monk seals run a risk of extinction of the order of 40% to 80% over the course of the next 60 years.

In 1994, the conclusions of a working group of the IUCN on the chances of survival of monk seal populations in Greece indicate that the present level of direct persecution will end in nearly certain extinction within 200 years if the present growth rate of the populations is less than 3% per year.
Along the same line, it was shown that if deliberate killing was eliminated or drastically reduced, the chances of survival were rather high.

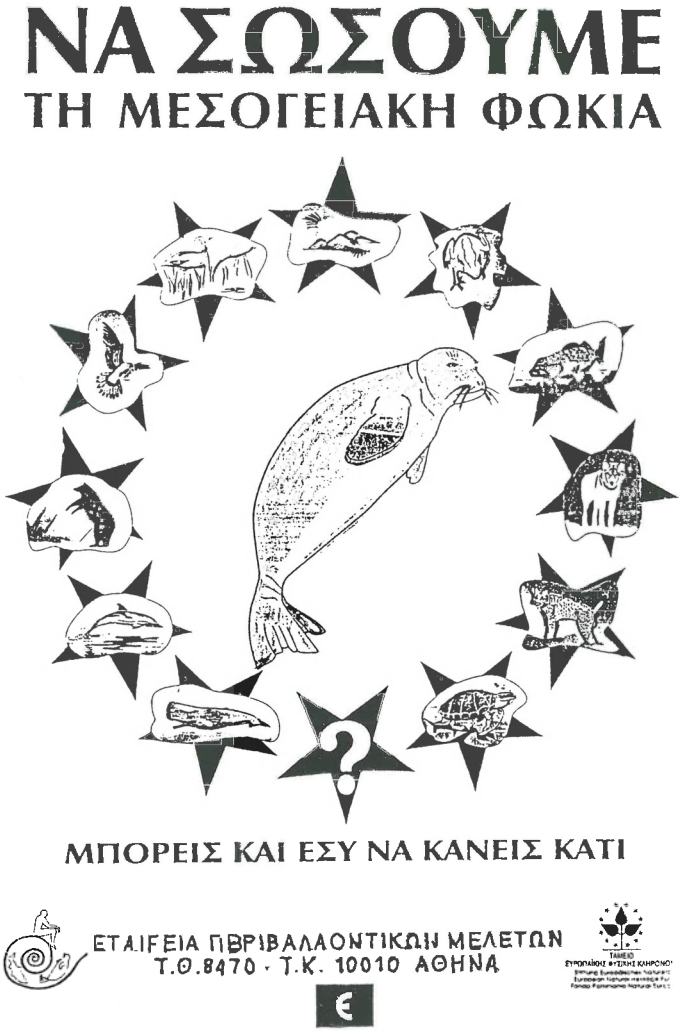
In the light of these two statistical analyses, world experts insist on the urgency of a limitation of all direct persecution.

Conservation measures

Conservation of the Mediterranean monk seal and its habitats has been incorporated in the legal instruments on conservation of the natural heritage:

- ❑ International conventions:
  - Bonn Convention, on the conservation of migratory species belonging to the wild fauna.
  - Berne Convention, relative to the conservation of the wildlife and the natural habitats of Europe.
  - CITES Convention, on international trade in wild species of fauna and flora threatened with extinction.
  - Barcelona Convention, relative to the conservation of Mediterranean marine habitats.
  - Rio Convention on Biodiversity.
- ❑ Directive 92/43/EEC of the Council of Ministers of the European Union concerning the conservation of fauna, flora and natural habitats.
- ❑ National legislation (except Libya and Lebanon).

©A. Argiolas (Marineland. Antibes). 1988. - Pup in the cave M/SIT/March3 .



©Poster designed by D. Cebrian (EREB). 1993.

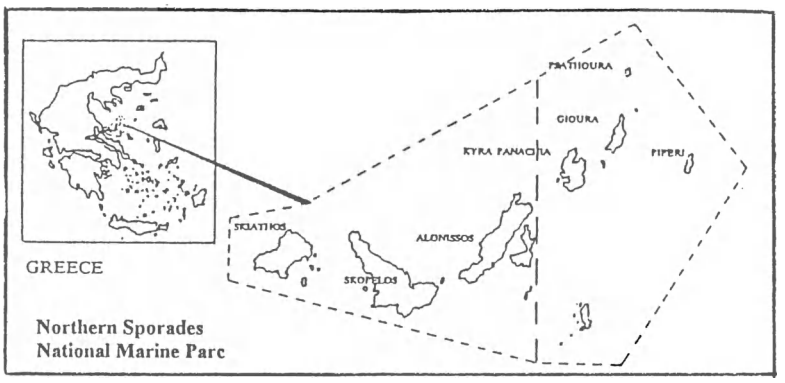
Within this framework, and under the auspices of the Commission of the European Communities, a great many actions in favour of the natural heritage have been undertaken by various associations and institutions:

1. Creation of protected areas.
2. Monitoring programmes.
3. Public awareness programmes.
4. Study of marine ecosystems.
5. Captive breeding.
6. Centralisation of information.

1. Creation of protected areas

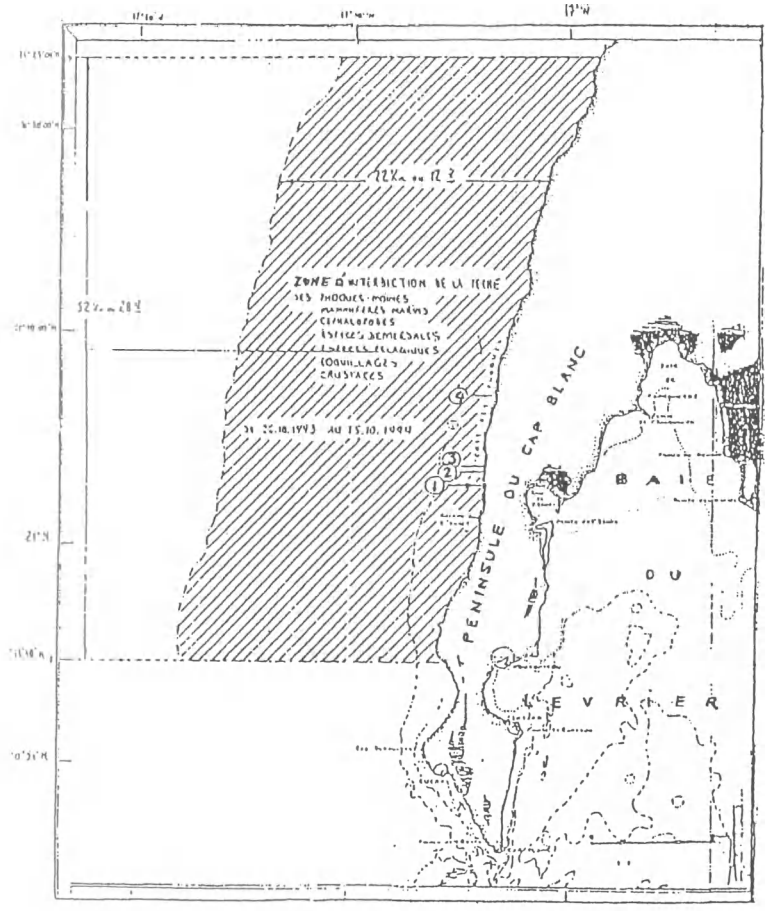
Directive 79/409/EEC of the European Union requires each Member State to designate a network of **special protection areas** to ensure the conservation of the habitat of fragile species of birds. Within the framework of the implementation of this directive, a methodology has been developed to evaluate the adequacy of the network. If a similar approach was adapted to the case of the monk seal, for which special conservation areas will also have to be designated under Directive 92/43/EEC on the conservation of fauna, flora and habitat, it would require the inclusion of 92% of the population within the network.

Two marine parks have been established within the limits of the Union, one in the Desertas islands of Madeira, the other in the Northern Sporades in the Aegean. The monk seal colonies located in these reserves benefit directly from local conservation measures that assure the stability and even an increase of the populations concerned.



Protection *in situ* constitutes one of the essential elements of the conservation of the species in the Atlantic. In 1993, the CSISPM (International Scientific Committee for the Supervision of the French Programme for the Safeguard of the Monk Seal -- Comité Scientifique International pour le suivi du Programme Français de Sauvegarde du Phoque Moine) recommended:

- the reinforcement of policy on the protection of space and food resources by the creation of reserves, in particular, on the Côte des Phoques (Saharan Atlantic coast) and at the Rachgoun sites and on the Habibas islands (Algeria).
- the improvement of management of the spaces already protected.



N° 4229 – 2 joumada II 1414 (17-11-93). BULLETIN OFFICIEL

Arrêté du ministre des pêches maritimes et de la marine marchande n° 2134-93 du 10 joumada I 1414 (26 octobre 1993) relatif à l'interdiction temporaire de pêche des phoques-moines et autres mammifères marins ainsi que de certaines autres espèces marines.

LE MINISTRE DES PECHES MARITIMES ET DE LA MARINE MARCHANDE,

Vu le dahir portant loi n° 1-73-211 du 26 moharrem 1393 (2 mars 1973) fixant la limite des eaux territoriales, tel qu'il a été modifié ou complété et notamment son article premier ;

Vu le dahir portant loi n° 1-73-255 du 27 chaoual 1393 (23 novembre 1973) formant règlement sur la pêche maritime, notamment ses articles 6 (alinéa 2) et 34 (alinéa 1) ;

Considérant la nécessité d'assurer la conservation des espèces marines menacées de disparition et notamment du phoque-moine et autres mammifères marins présents sur les côtes marocaines,

conformément aux dispositions de la convention sur la conservation des espèces migratrices appartenant à la faune sauvage, faite à Bonn le 23 juin 1979 et ratifiée par le Royaume du Maroc par le dahir n° 1-85-160 du 6 hija 1413 (28 mai 1993) ;

Après avis de l'Institut scientifique des pêches maritimes,

ARRÊTE :

ARTICLE PREMIER. – La pêche du phoque-moine et autres mammifères marins, des céphalopodes, des espèces démersales et pélagiques ainsi que celle des coquillages et crustacés est interdite pour une durée de six années au large des côtes situées entre les parallèles 21° 21' 00'' et 20° 34' 40'', sur une distance de 12 miles marins calculés à partir des lignes de base.

ART. 2. – Le directeur des Pêches Maritimes et de l'aquaculture est chargé de l'exécution du présent arrêté qui sera publié au *Bulletin officiel*.

Fait à Rabat, le 10 joumada I 1414 (26 octobre 1993).

BENSALEM SHILI.

Ministerial decree of 26 October 1993, taken by the Kingdom of Morocco, temporarily prohibiting the take of monk seals, other marine mammals and some other marine species, in the Cap Blanc peninsula area.

The marine park of the Desertas is exemplary in its *in situ* management policies. Access to the park is strictly controlled, fishing there is forbidden, a station has been constructed there to house permanent research and guardian facilities. There is a close collaboration between official instances, park authorities and local fishermen. The entire ecosystem of the Desertas has benefitted from this protection.

©M.O. Beudels (IRSNB). 1992. - Parque Natural Da Madeira. Protected area of the Desertas Islands.

©H. Costa Neves (Parque Natural Da madeira). 1990. - Deserta Grande. The biological station of Doca. Desertas Islands.

The National Marine Park of Alonissos Northern Sporades, located in the North Aegean sea, is the first marine park in Greece. It includes seven islands and several smaller islets. Of the seven islands within thepark, one is inhabited while others are deserted. The park was founded in 1986, and its objective is the conservation of the wildlife in the area. The park contains important habitats for several endangered species such as the giouras endemic wild goat (*Capra aegagaus*), the rare eleonora falcon (*Falko eleonorae*) and the Aegean seagull (*Larus audouinii*). The Northern Sporades is one of the most important habitats for the Mediterranean Monk Seal and 29 individuals have been recognized in 1993 in this area by the HSSPMS-MOm researchers.

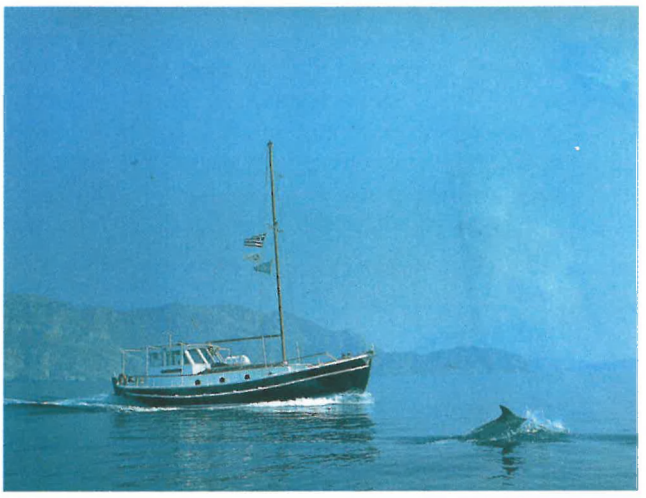
2. Monitoring programmes

The identification of monk seal reproduction areas allows the orientation of legal conservation measures. It is imperative to locate with precision all breeding sites, to follow the evolution of identified populations and to study their demography.

locating sites

Some regions are presently under study, such as:

- the Cyclades archipelago, by the Environmental Research Bureau (Greece)
- the Dodecanese archipelago, by the Hellenic society for the Study and the Protection of the Monk Seal
- the Myrton Sea, by the Ecological Society of Hydra (Greece)
- the Northern and East Aegean, by the Universities of Aegean and Thessaloniki (Greece)
- the Saharan Atlantic coast, by the Parc National de Port-Cros and the University of Las Palmas and the Instituto Nacional para la Conservación de la Naturaleza (ICONA-Spain)
- the Sardinian coasts, by the WWF-Italy
- the Turkish coasts of the Black Sea, by the University of Istanbul
- the Albanian coast by the Institut Royal des Sciences Naturelles de Belgique.



"IFAW-ODYSSIA", research boat of the HSSPMS. 1990. Northern Sporades National Marine Park.

©G. San Martin (Part-Cros). 1993. - A. Caltagirone with a monk seal. Réserve Satellite du Cap Blanc.

©M.O. Beudels and D. Vangeluwe (IRSNB). 1992. - A cave along the western coast of Karaburun. Albania.

following populations

Several research teams work in this domain, such as:

- HSSPMS (Hellenic Society for the Study and the Protection of the Monk Seal), in the Northern Sporades
- Institute of Marine Sciences and Technology (Izmir), EGE University (Izmir), Local Committee for the Monk Seal (Foça), Turkish Society for the Conservation of Nature and Natural Resources (Foça branch), at Foça.
- Parc National de Port-Cros, on the Cap Blanc peninsula and on the Côte des Phoques
- Parque Natural da Madeira, in the Desertas
- WWF-Greece, at Zakynthos and Kephalonia

©D. Marchessaux (Port-Cros) while collecting data in 1988. Réserve Satellite du Cap Blanc (Mauritanie).

©H. Costa Neves (Parque Natural Da Madeira). 1992. - Research boat of the Parque Natural Da Madeira.

©A. Caltagirone (Port-Cros). 1993. - Characteristic trails on beach . Réserve Satellite du Cap Blanc.

©D. Karavellas (WWF-Greece.) 1994. - General view of caves used by monk seals.

3. Public awareness programmes

Public awareness programmes remain essential. Further, they permit the reinforcement of regulatory or legislative measures and favour the multiplication of protected areas while being sensitive to local needs.

Outstanding work in this domain has been carried out, most notably by:

- Ecological and Cultural Movement of Alonnisos
- Elliniki Etairia (Athens-Greece)
- The European Nature Heritage Fund ((Germany)
- Hellenic Society for the Protection of Nature (Athens-Greece)
- Hellenic Society for the Study and the Protection of the Monk Seal (Athens-Greece)
- Institut Scientifique des Pêches Maritimes (Casablanca-Maroc).
- the Turkish Minister of the Environment (Ankara-Turkey)
- WWF-Greece (Athens-Greece)

HSSPMS. 1991.
Sensitization programme through the media.

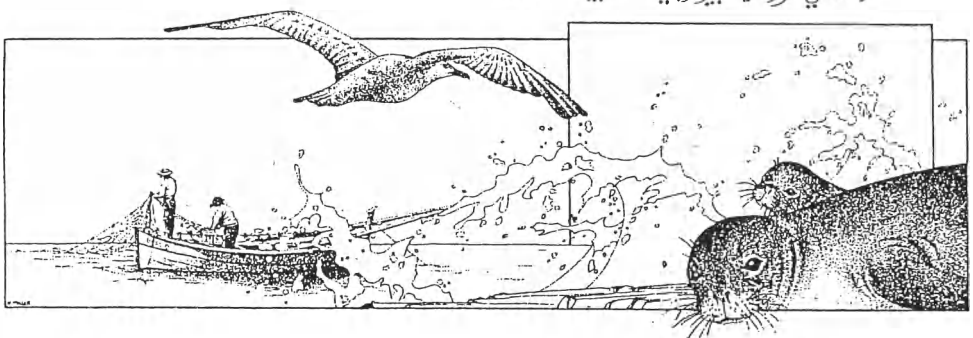
Comme les poissons, les oiseaux marins et les dauphins, le Phoque Moine est un habitant de notre mer

PROTEGER LE PHOQUE MOINE
C'EST PROTEGER LA MER

et sa richesse biologique pour les générations futures

أن الفقمة، كالأسماك والطيور البحرية والدلافين، تسكن مياهنا الإقليمية البحرية.

حماية الفقمة
تعني
حماية البحر
وتعني ثروته البيولوجية للأجيال القادمة



VOUS PECHEURS,
QUI VIVEZ LA MER QUOTIDIENNEMENT
signalez le plus rapidement possible les phoques blessés ou les jeunes abandonnés

أنتم أيها الصيادون
الذين تعيشون كل أيامكم في البحر
أخبروا، في أقرب الآجال، عن الفقم المصاب
أو عن الصغار الشاردة
على الأرقام الهاتفية التالية:

Edité en Septembre 1991 par le Parc National de Port-Cros (PNPC) et l'Institut Scientifique des Pêches Maritimes (ISPM).
Ce document a été réalisé par Angela Caltagirone et Mohamed El Amrani.
Illustrations : Natacha Muller (couverture), Joan Mayol et Aina Bonner

4. Study of marine ecosystems

The combination of resource over-exploitation and habitat destruction has resulted in a decline in fish stocks, and therefore intensified competition between fishermen and monk seals.
Conservation measures specific to the monk seal are likely to be ineffective if the protection of sites does not go along with the development of management regulation measures, aimed at the rational and sustainable utilisation of marine resources, so that there is more than enough food for the seals.. A clause to this effect is included in the Directive 92/43/EEC on the fauna, flora and habitats.
Studies on the evaluation of benthic resources are indispensable and are conducted by, among others, the Laboratoire de Biologie Marine et d'Ecologie du Benthos of the Université de Marseille, by the University of Thessalonike and by the University of Athens.

©D. Karavellas (WWF-Greece.) 1994. - Typical catch of coastal fisheries in Greece. The degree of fishing effort shown in the slide (length of nets) relative to the limited size of the catch, is indicative of the major problem of fish stock depletion.

©D. Karavellas (WWF-Greece.) 1994.
Damage to trammel nets caused by monk seals (Zakynthos).

©Marine Mammals Unit . Aegean Sea Expedition. University ofIstanbul.
A Monk Seal in the wild coast of Turkey, July 1993

5. Captive breeding

A feasibility study of captive breeding has been suggested as a step to create a tool of last resort.
Captive breeding, if sucessfull, could ensure, in case of need, the genetic conservation of the species, and constitutes a source of young individuals for reinforcement of wild populations.

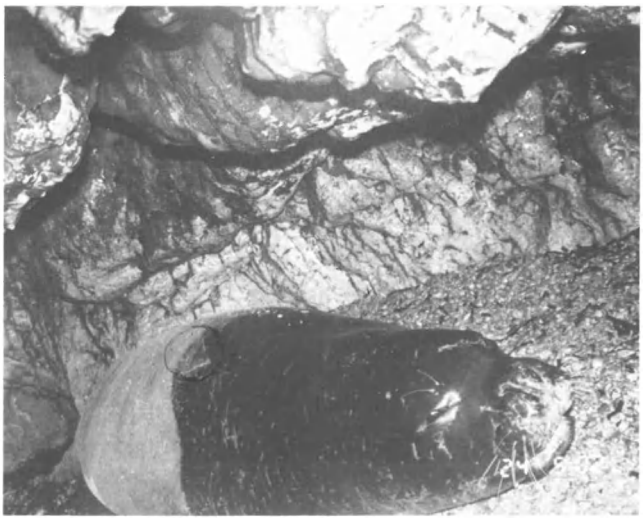
A programme aimed at those objectives is managed by the Parc National de Port-Cros. A scientific committee was created to bring together international specialists and scientists concerned with the protection of monk seals and meets regularly under the auspices of the French Minister of the Environment.

6. Centralisation of information.

In 1988, the Commission of the European Communities, for management purposes and within the framework of its conservation strategy in favour of relict populations of monk seals, recognized the importance of the centralisation of all available information, as well as the necessity of gathering this information into a form easy to consult and evaluate. No small task, given the extent of the range, the fragmentation and dispersal of monk seal populations, their low density and the difficulties of observation.

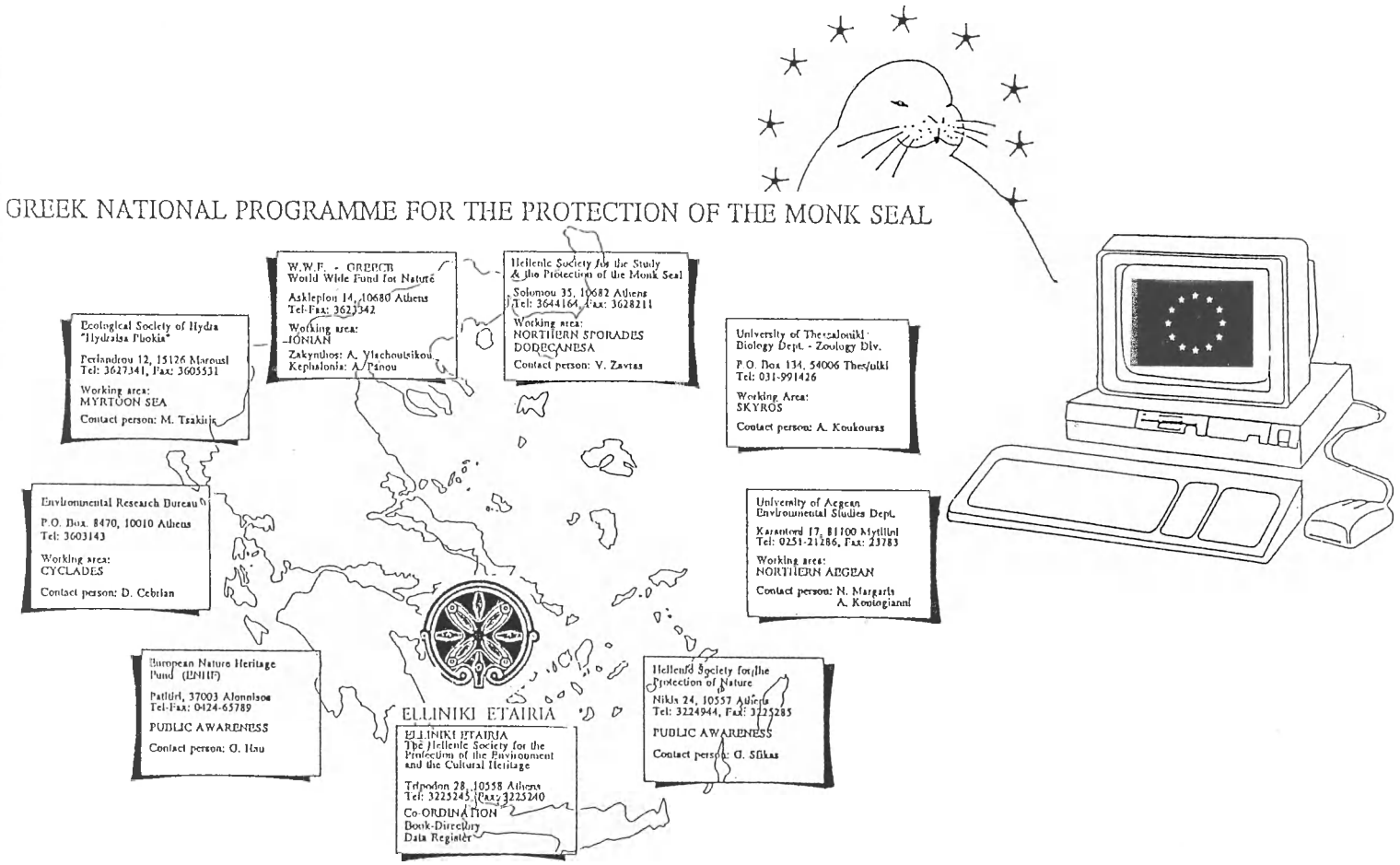
This is the role that the International Monk Seal Register, created in 1989 and progressively developed since, strives to fill. Notably, it must carry elements allowing it to respond to requirements of Directive 92/43/EEC regarding the designation of protected areas and appropriate management measures for species listed in Annexes I and II.

The development and management of the International Monk Seal Register has been undertaken by the Sea Mammal Research Unit (Cambridge) and the Institut Royal des Sciences Naturelles de Belgique, with the support of the Commission of the European Communities.



Photograph sample from the automatic device in caves. Kira Panagia. 23/03/90. Northern Sporades. 1991. Cave camera project: IRSNB-SMRU, with the collaboration of HSSPMS and the support of the European Community and of the Kingdom of Belgium.

Activities of the Register since its inception include the development of techniques for monitoring monk seals in sea caves (automatic photography and infrared video cameras)



The Monk Seal Register

The Monk Seal Register is a group of services available to everyone who is engaged in monk seal conservation efforts. It has three complementary functions:

- **Archive of all information related to monk seal conservation.**

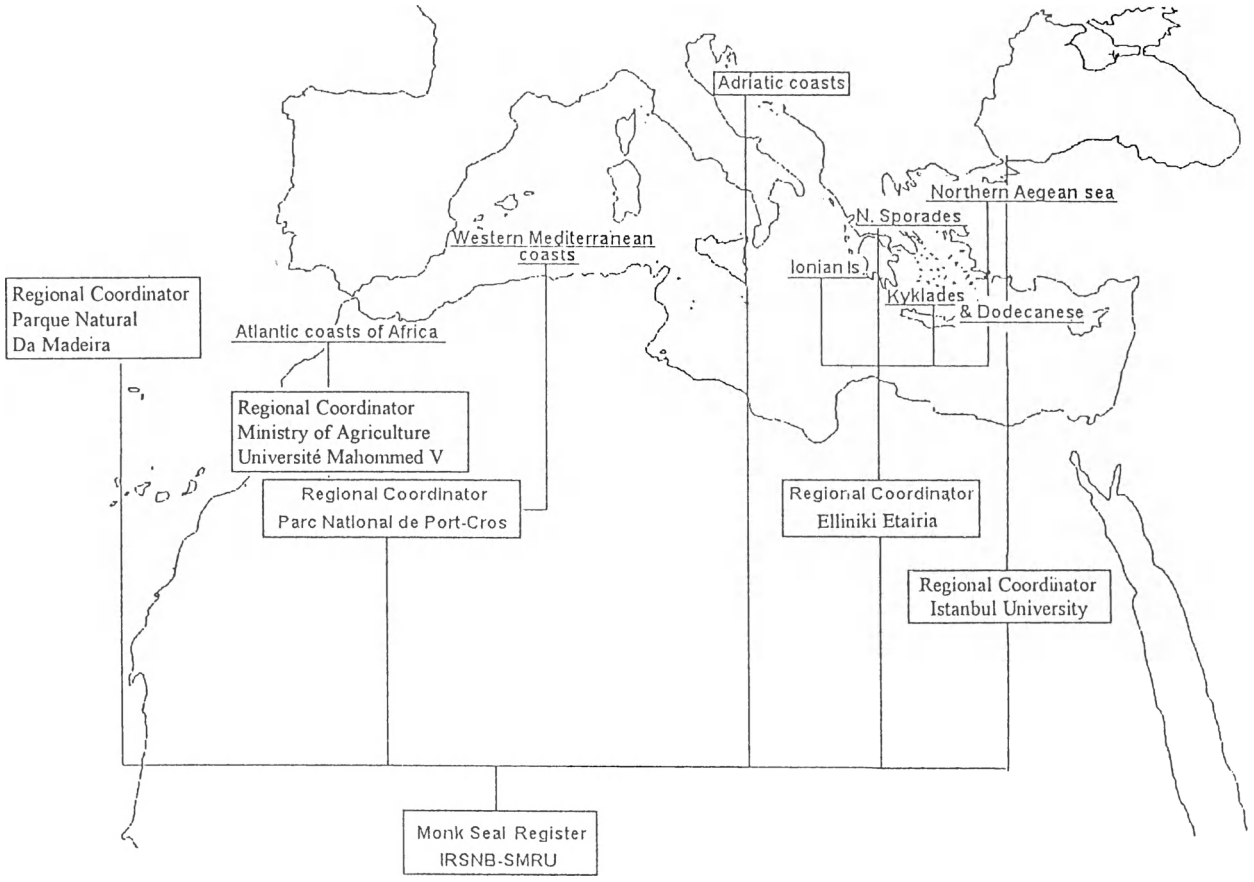
  The Register is a depository of information in standardised form. Within a restoration programme for an endangered species thinly distributed and difficult to observe, effective implementation of all existing information is maximized by use of such a tool. This is the essential function of the Register.

- **Communication between participants in the various monk seal conservation efforts.**

  The Register assures a link between national and international authorities, scientific institutions, teams working in the field and everyone apt to encounter the species.

  The Register presently works in collaboration with more than fifty participants from eight Member States, three PHARE countries and five other countries.

- **Development of methodologies** to convert raw data into parameters necessary for the estimation of the risk of extinction of the species and the identification of appropriate corrective measures.



Links of the Monk Seal Register between national and international authorities, scientific institutions and teams working in the field.

1. Development of the Register

The Monk Seal Register was established in 1989 within the framework of the environmental policies of the Commission of the European Communities. Its development has been progressive.

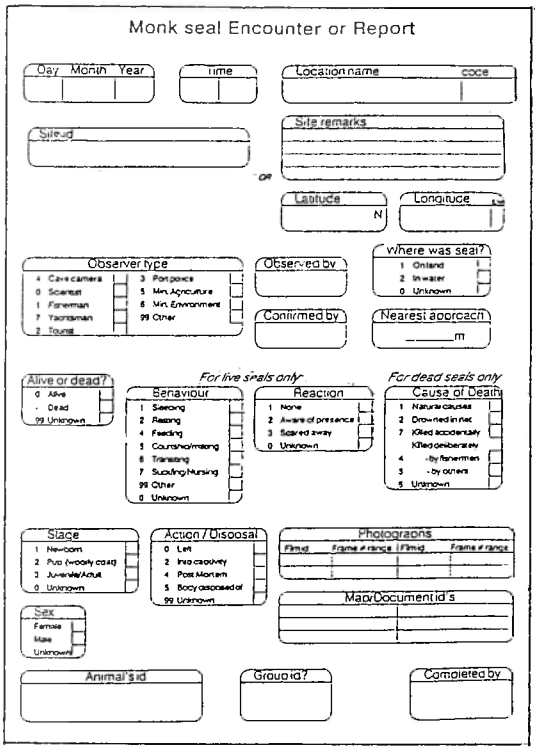
1989-1990

Adaptation of a standardised methodology for the collection of data.
Design and editing of the data collection forms to be used in the field.
Design and development of the computer project,
Establishment of the network of collaborators in the Member States engaged in monk seal conservation projects.
Organisation of the systematic collection of data at Madeira and in the Sporades and the entering of these data into the base.
Compilation and commencement of entering information from historical documents into the base.
Perfection of photography in sea caves and experimentation in the Northern Sporades National Park.

Photograph sample from an automatic device in caves. Northern Sporades. 1991.Cave camera project of Monk Seal Register (IRSNB / SMRU/ Belgian Funds LOTTO).

1991-1992

Formation of teams in the use of computers, perfection of information promulgation.
Entering of new data gathered at Madeira and in the Sporades.
Extension of the network of collaborators.
Organisation of data collection at Zakynthos (Ionian Sea).
Continuation of the compilation and entering of historical data.
Joint project with Elliniki Etairia, as coordinator of the Greek National Programme for the Protection of the Mediterranean Monk Seal in Greece.



"Encounter" form filled by the team of the parque Natural da Madeira.

1992-1994

Coordination of teams in the field by the organization of meetings.
Participation in exploration in the field.
Perfection of an infrared video camera technique and its installation in sea caves in the Desertas.
Feasibility study for the installation of video cameras in the Cyclades and in the Ionian Sea.
Continuation of collection of data in the caves of the Sporades with automatic cameras.
Development and initial application of software programmes for the exploitation of the data stored in the base.
Evaluation of the status of the monk seal along the coasts of Albania, Bulgaria, Rumania and Ukraine,
Initial contacts to offer the services of the Register to the Turkish authorities.
Formation of collaborators in the use of software extensions of the Register in the course of various seminars.
Representation of the Register during international colloquia on marine mammals, in particular at the seminar organised by the IUCN and Elliniki Etairia, on the viability of the monk seal population in Greece.

©D. Vangeluwe (IRSNB). 1993. - Bulgaria. Cape Kaliakra.

2. Implementation

The methodology developed within the framework of the Register has led to the elaboration of seven standard forms for in-the-field data gathering:

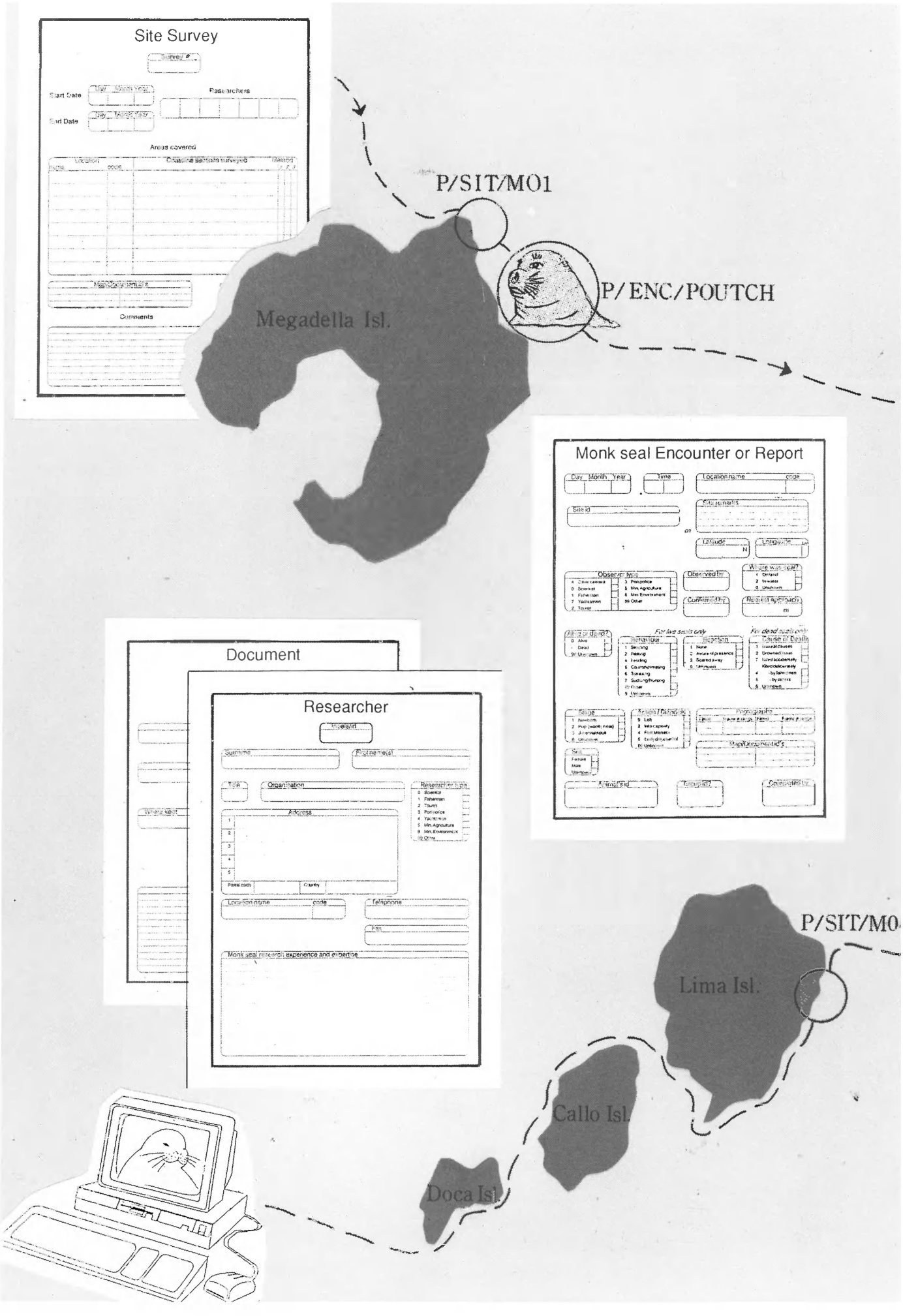
- ❑ Survey
- ❑ Encounter
- ❑ Site detail
- ❑ Visit to site and cave camera maintenance
- ❑ Document
- ❑ Research
- ❑ Sick seal
- ❑ Post mortem

The following double page illustrates the use of these data sheets in the course of a survey.

©D. Karavellas (WWF-Greece.) 1994. - Monk seal hauled out inside cave (Zakynthos).

©A. Caltagirone (Port-Cros). 1993. - Côte des Phoques.

©D. Marchessaux (Port-Cros). 1985. - Réserve Satellite du Cap Blanc.


Site Survey
Start Date
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Researchers
Areas covered
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Monk seal Encounter or Report
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Time
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Longitude
Observer type
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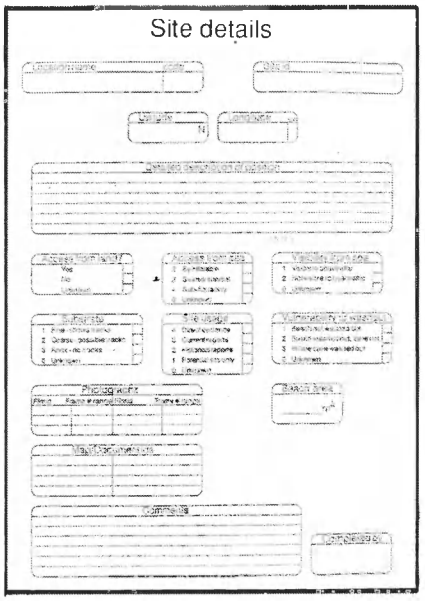
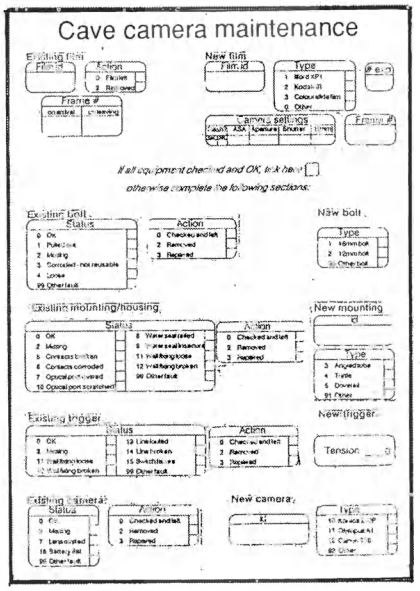
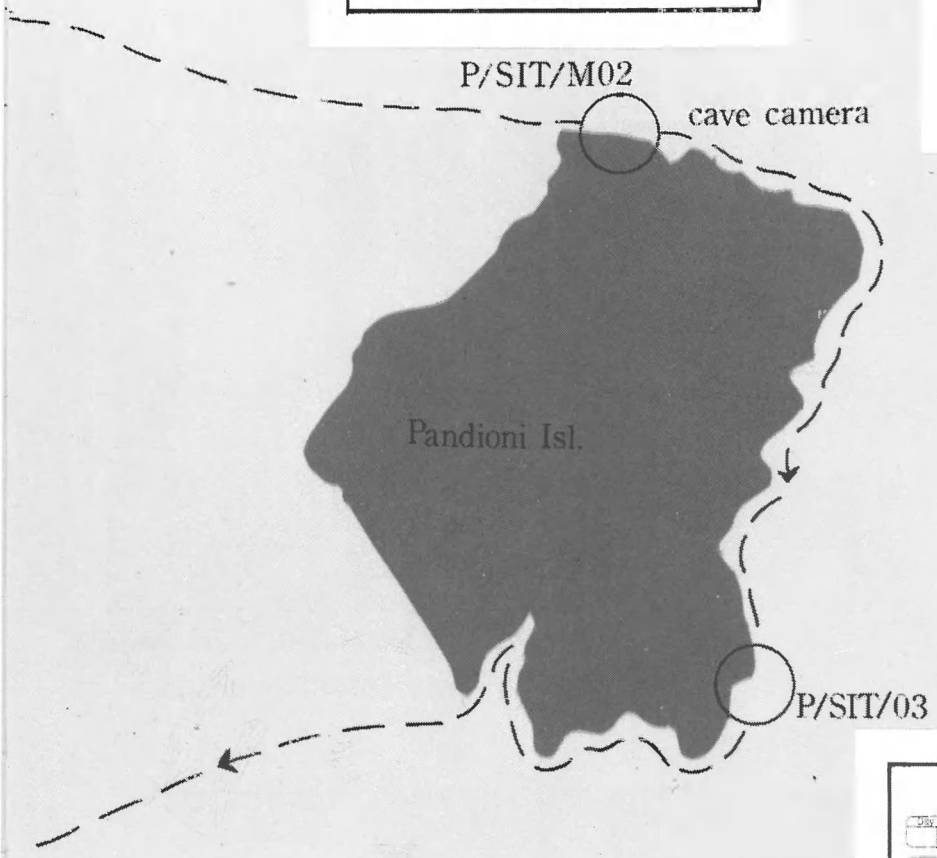
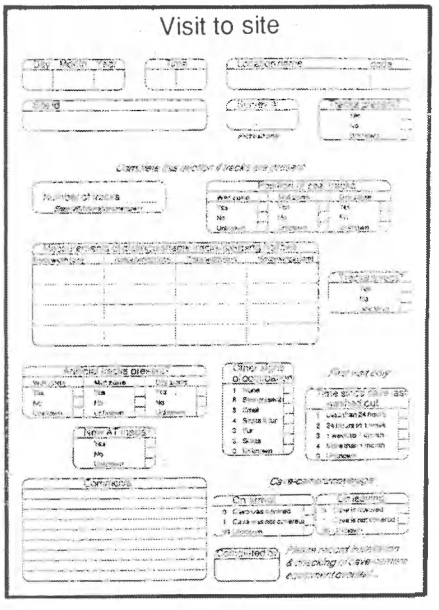
Confirmed by
Request approach
Behaviour
Reaction
Cause of Death
Photographs
Document
Researcher
Surname
Forename(s)
Title
Organisation
Address
Postal code
Country
Location name
code
Telephone
Fax
Monk seal research experience and expertise
Where kept
P/SIT/MO
Lima Isl.
Callo Isl.
Doca Isl.


Site details


Cave camera maintenance

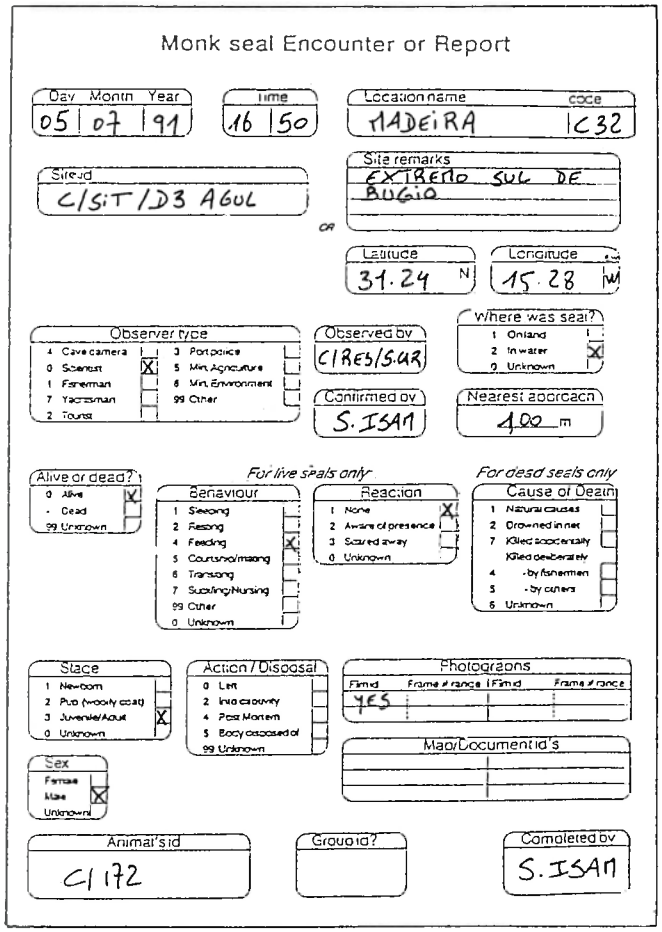

P/SIT/M02
cave camera
Pandioni Isl.
P/SIT/03


Visit to site

Encounter form

Data related to each direct observation of a seal are recorded in an "encounter form".

This page illustrates the elaboration of such an observation in the Desertas Marine Park.



Monk seal Encounter or Report

Day 05 Month 07 Year 91 | Time 16 50 | Location name MADEIRA | code C32

Site id C/SIT/D3 AGUL | Site remarks EXTREMO SUL DE BUGIO | OR

Latitude 31.24 N | Longitude 15.28 W

Observer type: 4 Cave camera | 3 Port police | 0 Scientist X | 5 Min. Agriculture | 1 Fisherman | 6 Min. Environment | 7 Yachtsman | 99 Other | 2 Tourist

Observed by C/RES/S.UR | Where was seal? 1 Onland | 2 In water | 0 Unknown X

Confirmed by S.ISAM | Nearest approach 100 m

Alive or dead? 0 Alive X | - Dead | 99 Unknown

For live seals only

Behaviour: 1 Sleeping | 2 Resting | 4 Feeding X | 5 Courtship/mating | 6 Transiting | 7 Suckling/Nursing | 99 Other | 0 Unknown

Reaction: 1 None X | 2 Aware of presence | 3 Scared away | 0 Unknown

For dead seals only

Cause of Death: 1 Natural causes | 2 Drowned in net | 7 Killed accidentally | Killed deliberately | 4 - by fishermen | 5 - by others | 6 Unknown

Stage: 1 Newborn | 2 Pup (woolly coat) | 3 Juvenile/Adult X | 0 Unknown

Action / Disposal: 0 Left | 2 Into captivity | 4 Post Mortem | 5 Body disposed of | 99 Unknown

Photograpns: Film id | Frame # range | Film id | Frame # range — YES

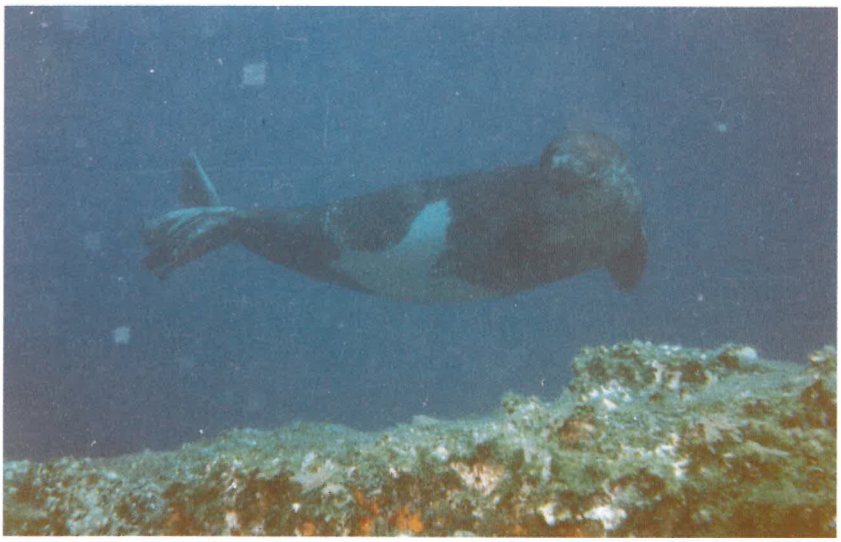
Map/Document id's

Sex: Female | Male X | Unknown

Animal's id C1172 | Group id? | Completed by S.ISAM

"Encounter" form filled by the team of the parque Natural da Madeira.

©M.O. Beudels (IRSNB). 1993. - View of Bugio from Deserta Grande. Desertas Islands.



©C. Freitas (Parque Natural Da Madeira). 1992 - A large male at Bugio. Desertas Islands.

Site details form

Data pertaining to sites are compiled on individual forms.

The comparison, within the Register, of historical data and of recent data enables caves frequented by the seals to be mapped and the evolution of its local distribution to be monitored in a standard way.

The use of the Register in the Desertas Marine Park thus showed, in particular, that some areas such as the waters around Ilheu Chaos where records had ceased since 1985, are again frequented by the species.

©H.Costa Neves (Parque Natural Da Madeira). 1993. - A cave: Calhau Das Areias. Deserta Grande. Desertas Islands.

Site details

Location name: MADEIRA | code: C32

Site id: C/SIT/D2 AREI

Latitude: 32.29 N | Longitude: 16.29 W

Detailed description of position: DESERTA GRANDE NAME "CALHAU DAS AREIAS" LADO OESTE DESERTA GRANDE

Access from land?
Yes
No
Unknown

Access from sea
2 By inflatable
3 Swim or snorkel
4 Sub-Aqua only
0 Unknown

Visibility from sea
1 Visible to boat traffic
2 Not visible to boat traffic
0 Unknown

Substrate
1 Fine - shows tracks
2 Coarse - possible tracks
3 Rock - no tracks
0 Unknown

Site usage
4 Direct evidence
3 Current reports
2 Historical reports
1 Potential site only
0 Unknown

Vulnerability to washout
1 Beach not washed out
2 Beach washed out, cave not
3 Whole cave washed out
0 Unknown

Photographs
Film id | Frame # range | Film id | Frame # range
YES

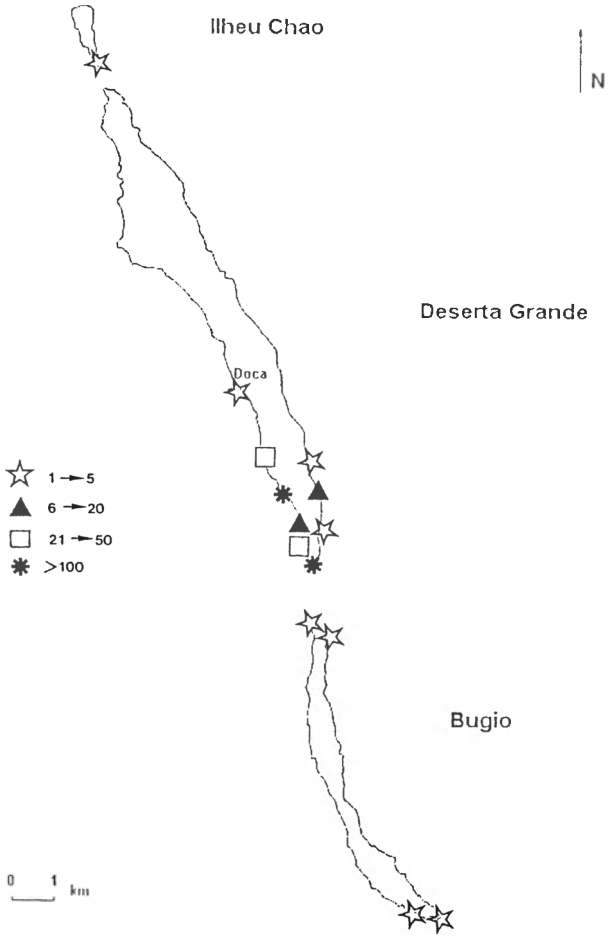
Beach area: ..... m²

Map/Document ids
YES

Comments: BAIA PROTEGIDA A OESTE

Completed by: S.ISAM

Site details form filled by the team of the Parque Natural Da Madeira.



Visit to site form

In the absence of actual encounter with a seal, the degree of occupation of a site can be inferred from the combination of various indices:

- ❑ tracks left in the sand,
- ❑ excrements,
- ❑ characteristic odours, etc

An example of such a form is one filled in by the HSSPMS during a survey in the Northern Sporades Marine Park.

Visit to site

Day Month Year: 21 | 04 | 94

Time: 16 | 15

Location name: PiPERi

code: A143A

Site id: PiP 2

Survey #:

First visit only

Tracks present? Yes / No / Unknown: X

Complete this section if tracks are present

Number of tracks: 99

Enter 99 if number unknown

Position of seal tracks

	Wet zone	Mid zone	Dry zone
Yes	X	Yes	Yes
No		X No	X No
Unknown		Unknown	Unknown

Measurements of distinguishable tracks/sleeping hollows

Track width (cm)	Hollow length (cm)	Track width (cm)	Hollow length (cm)

Tracks swept? Yes / No / Unknown: X

Artificial tracks present?

Wet zone	Mid zone	Dry zone
Yes	Yes	Yes
X No	X No	X No
Unknown	Unknown	Unknown

Other signs of occupation

- 7 None
- 6 Seal present: X
- 5 Smell
- 4 Scats & fur
- 3 Fur
- 2 Scats
- 0 Unknown

First visit only

Time since cave last washed out

- 1 Less than 24 hours
- 2 24 hours to 1 week
- 3 1 week to 1 month
- 4 More than 1 month: X
- 0 Unknown

New AT made? Yes / No / Unknown: X

Comments

Cave:camera coverage

On arrival	On leaving
0 Cave was covered	0 Cave is covered
1 Cave was not covered: X	1 Cave is not covered: X
99 Unknown	99 Unknown

Completed by: TOEL

Please record installation & checking of cave-camera equipment overleaf...

©A. Caltagirone (Port-Cros). 1993. - Characteristic trail . Réserve Satellite du Cap Blanc.

National Marine Park of Alonissos Northern Sporades

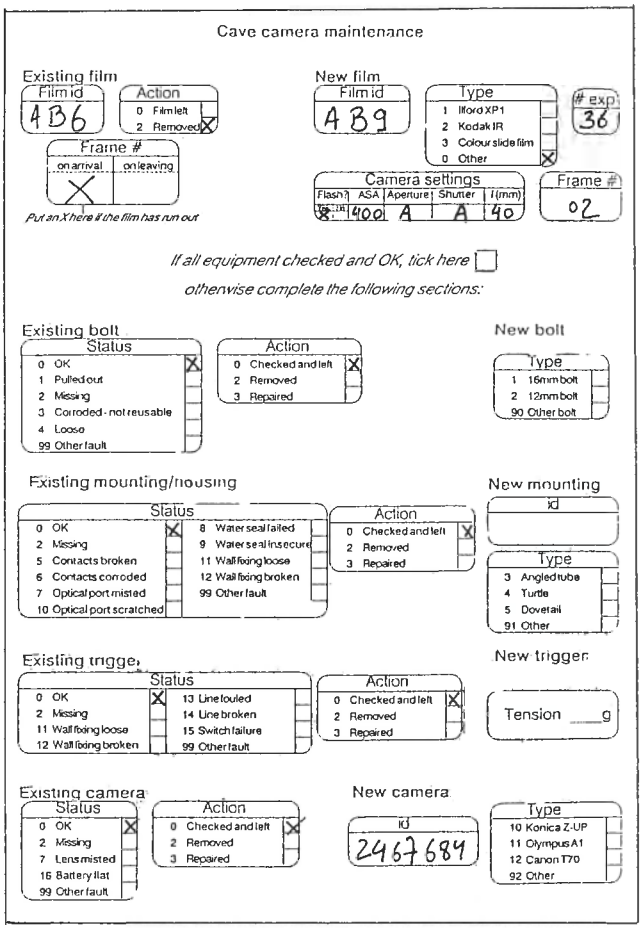
©P. Dendrinos (HSSPMS). 1994. - Cave at Piperi. Northern Sporades.

©P. Dendrinos (HSSPMS) . 1994. - An adult monk seal sleeping in a cave. Northern Sporades.

Cave camera maintenance form

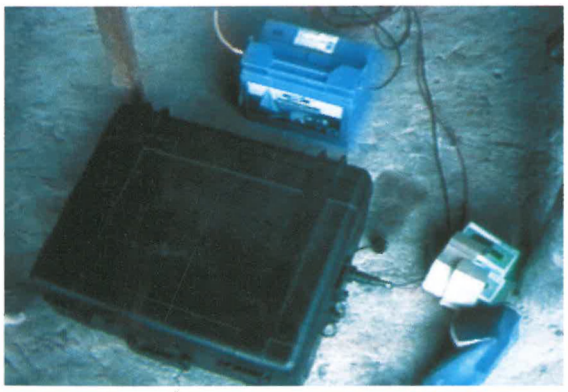
In the Northern Sporades Marine Park, 32 potential sites have been identified and are regularly visited by the HSSPMS team from 1990 to 1993. More than 900 visits were conducted. In their course, 300 observations of seals were made and recorded in the database.

In four caves, automatically triggered cameras specifically designed for the Register, were installed. They permitted more than 3.800 hours of cave monitoring. Seals were photographed on 171 occasions.



©I. Bachy (IRSNB). 1994. - Pictures from the film taken in 1993 by IRSNB during the installation, by the SMRU team , of a video camera in a cave. Desertas Islands.

Mother with pup in a cave. Northern Sporades 1993. Consecutive photographs taken by an automatic camera at two-hours interval. Cave camera project: Monk Seal Register (IRSNB / SMRU) with the collaboration of HSSPMS-MOM and the support of the European Community and the Kingdom of Belgium.



©I. Bachy (IRSNB). 1994. - Recorder set for the video camera installed at Deserta Grande. Madeira.

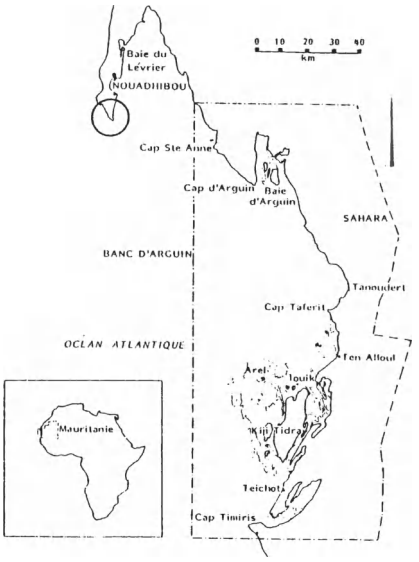
Individual recognition

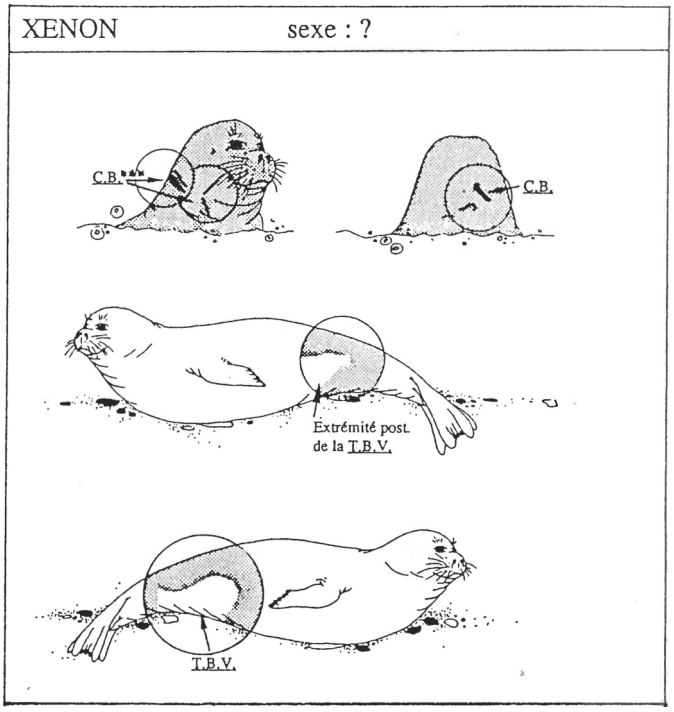
An example: the seals of Cap Blanc.

Starting in 1984, Didier Marchessaux used individual recognition techniques to assess and monitor the small population of monk seals frequenting the beaches at the foot of Cap Blanc. His observations were recorded on individual identification sheets; they concern a group of ten seals. Each was identified by the intensity of pigmentation of the fur, the presence of colour patches, the shape, size and situation of scars, the shape and size of the white ventral patch.

The behaviour of the individuals studied by Marchessaux, allowed continuous observation at close-range.

This approach would be difficult to adapt in other regions. Automatic photography of seals in caves thus appears to be the most adequate method of individual identification. Automatic cameras were developed and installed from 1990 on in caves of the Sporades. Recently, a high-resolution, low-light intensity video camera was placed in one of the most frequented caves of the Desertas.





XENON: Identification form completed by D. Marchessaux (Port-Cros). 1985.

©A.Caltagirone (Port-Cros). 1993. - XENON on the beach. Réserve Satellite du Cap Blanc.

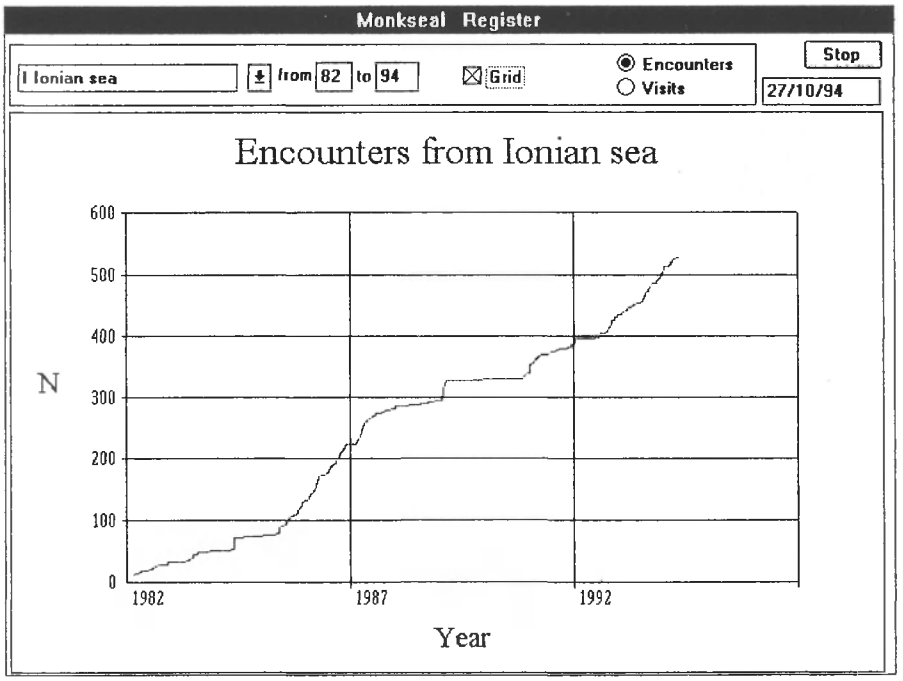
```
╔═ MONKSEAL REGISTER ═══════════════════ Atlantic coasts of Africa ═╗
                        Current animal: M/ XENON
┌─ ENCOUNTERS ──────────────────────────────────────── Sex: UNKNOWN ─┐
    Dates      Locations                    Observations
 1) 09/12/84  POINTE DU CAP BLANC (R.S.) Stage : ADULT       size>2m
39) 15/03/86  POINTE DU CAP BLANC (R.S.) Status: ALIVE
┌─ PICTURES ──────────────────────────────────────────────────────────┐
   Left:y        Right:y        Up:          Down:n      Filled by D.MARC
```

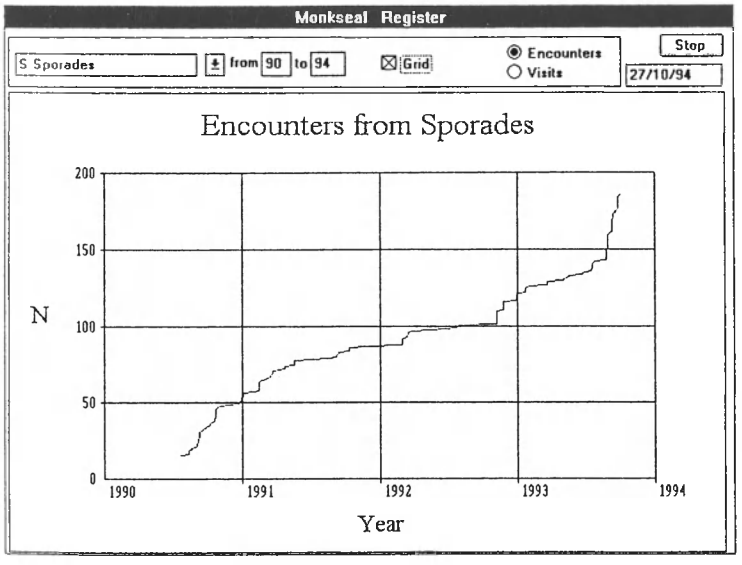
3. State of the Register

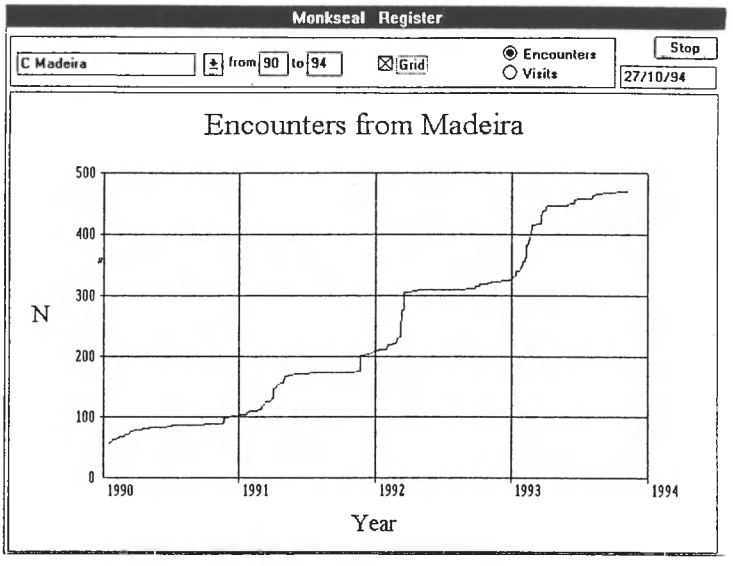
The table below summarizes the number of sheets contained in the Register at the end of September 1994:

Satellite	Surveys	Encounters	Visits	Sites	Research	Documents	Comments
North Aegean	7	149	12	340	25	11	1642
Ionian sea	12	560	68	255	87	26	345
Kyklades	7	407	6	262	29	51	2149
Sporades	16	187	587	82	19	26	1268
Saharian coast	11	656	6	13	28	41	1026
Madeira	3	471	13	40	16	14	1684
Total	**56**	**2430**	**692**	**992**	**204**	**169**	**8114**

The following graphs illustrate the evolution of data collecting since the installation of the Register and of observation pressure. In the Desertas, there is a noteworthy decrease in sightings of monk seals during the summer, a phenomenon which remains to be explained.







4. Extension

Efforts to save the monk seals are hindered by the lack of information relative to its distribution, its abundance, and its habitat requirements, the latter significant in particular within the framework of the implementation of Directive 92/43/EEC on habitats.

The development of the Register has as one of its main objectives the gathering of these essential data.

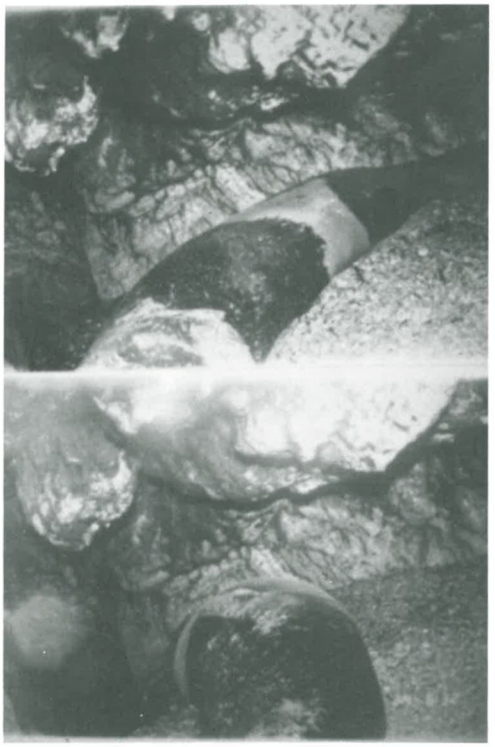
Caves and important sites will be located with more precision through the use of satellite-oriented geographical positioning instruments (GPS) and recorded within a geographical information system (GIS). The habitat requirements of the species will be better detailed in parallel with the development of the marine units of the CORINE-BIOTOPES habitat typology.

Individual recognition combined with capture-recapture analysis offers a possibility of evaluating the **size of local populations** and their **vital parameters**.

Automatic photography of individuals in caves is the individual identification method best adapted to the behaviour of the monk seal. The placing of cameras and video cameras will be extended to the entire range of the species.

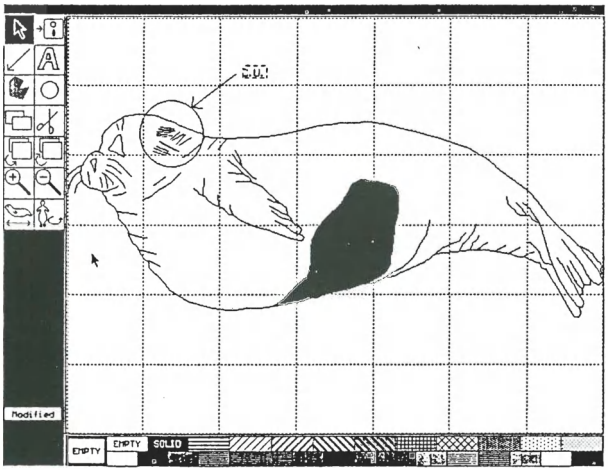
Now, the software programs of the Register allow the display on screen of stylized images of all individuals identified and their comparison. It is possible to modify these images so that information on each individual is perfected **until ultimately a complete catalogue of all the monk seals known will have been compiled**. This file is permanently at the disposition of researchers.

Analyses will then make possible estimation of monk seal numbers, recruitment rates and survival rates, vital parameters necessary for the evaluation of the viability of local monk seal populations. They will be completed by precise information on displacements of seals obtained from the comparison of catalogues between neighbouring satellites and the telemetric monitoring of selected individuals by satellite.



Individual recognition:

1. Cave camera project: IRSNB-SMRU, with the collaboration of HSSPMS and the support of the European community and of the Kingdom of Belgium.
2. Identification form model from D.Marchessaux used by the Register.
3. ©A.Caltagirone (Port-Cros). 1993. - Réserve Satellite du Cap Blanc. Seal on the beach with a characteristic white ventral patch.



The following institutions and organisations participate in the Monk Seal Register project:

- ❑ Elliniki Etairia (The Hellenic Society for the Protection of the Environment and the Cultural Heritage)
- ❑ Environmental Research Bureau (EREB - Greece)
- ❑ Etat belge: Loterie Nationale (Belgium)
- ❑ Greek Ministry for Environment
- ❑ Goulandris Natural History Museum (Greece)
- ❑ Hellenic Society for the Protection of Nature (Greece)
- ❑ Hellenic Society for the Study and the Protection of the Monk Seal (HSSPMS-MOm - Greece)
- ❑ Institut Scientifique des Pêches Maritimes. (Casablanca - Morocco)
- ❑ Institut des Sciences de la Nature. Université Es-Senia. (Oran - Algeria)
- ❑ Parc National de Port-Cros (France)
- ❑ Parque Natural Da madeira (Madeira)
- ❑ Research Institute of Forestry and Natural Management (Texel - The Netherlands)
- ❑ Scientific Group from the University of Aegean (Greece)
- ❑ Scientific Group of the University of Thessaloniki (Greece)
- ❑ University of Athens (Greece)
- ❑ University of Istanbul (Turkey)
- ❑ Université de Marseille (France)
- ❑ Université Mohammed V. (Rabat - Morocco)
- ❑ University of Munich (Germany)
- ❑ University of Tirana (Albania)
- ❑ University of Zagreb (Croatia)
- ❑ World Wide Fund for Nature WWF - Foça Pilot Project (Turkey)
- ❑ World Wide Fund for Nature WWF - Greece
- ❑ World Wide Fund for Nature WWF - Italy

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Document prepared by the CONSERVATION BIOLOGY Section of the Institut Royal des Sciences Naturelles de Belgique with the collaboration of the organisations listed above.

D/1994/0339/15